

REMARKS

This amendment is in response to the Office Action of November 5, 2010. Claims 1, 44, 45, 47, 49, 55-57, 70, 73, 74, and 78 have been amended and claim 53, 54, and 75-77 have been cancelled without prejudice. Claims 1, 42-52, 55-74, and 78-87 are currently pending. No new matter has been added.

Claim Objections

Claims 47, 55 and 73-74 were objected to due to informalities. These claims have been amended as suggested by the Examiner. The Applicants believe that these amendments do not narrow the scope of the amended claims. The Applicants respectfully request withdrawal of the objections to these claims.

§112 Rejections

Claims 1 and 42-77 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. These claims have been amended as suggested by the Examiner or canceled. The Applicants believe that these amendments do not narrow the scope of the amended claims. The Applicants respectfully request withdrawal of these rejections of the claims.

§102 and §103 Rejections

Claims 1, 42-54, 59-60, 62, 71-72 and 75-77 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,219,572 to Young ("Young"). Claims 55-58 and 72-74 were rejected under 35 U.S.C. 103(a) as being unpatentable over Young in view of U.S. Patent Application Publication No. 2003/0163048 to Rafter et al. ("Rafter"). Claims 61 and 63-70 were rejected under 35 U.S.C. 103(a) as being unpatentable over Young in view of U.S. Patent No. 5,921,931 to O'Donnell et al. ("O'Donnell").

Claim 1 recites acquiring pre-injection data of the tissue site; injecting a contrast agent at an injection site; acquiring post-injection data of the tissue site; obtaining phase-correlated pre-injection data from the pre-injection data and phase-correlated post-injection data from the post-

injection data by correlation of the pre-injection data and post-injection data with a cardiac phase; and performing a difference analysis between the phase-correlated pre-injection data and the phase-correlated post-injection data to detect, localize, and quantify anatomical, morphological and/or functional features of the tissue site.

Young does not teach or suggest obtaining phase-correlated pre-injection data from the pre-injection data and phase-correlated post-injection data from the post-injection data by correlation of the pre-injection data and post-injection data with a cardiac phase. Neither Rafter nor O'Donnell teach or suggest correlation of data with cardiac phase. As indicated in the present patent application, selecting phase-correlated data (i.e., data which accounts for the phase of the cardiac cycle) reduces image variation that is a result of the cardiac phase. Such variation may otherwise introduce image artifacts arising from the variation in blood flow during the cardiac cycle.

None of the other cited references address these deficiencies of Young. For at least these reasons, claim 1, as well as claims 42-52 and 55-74, which depend therefrom, are patentable over the cited references. The Applicants respectfully request withdrawal of the rejections of these claims.

The dependent claims include additional patentable features. For example, claim 61 recites automatically sorting and binning the data according to their temporal position in each of a sequence of cardiac phases over the total acquisition time. Claim 63 recites performing noise reduction on the data prior to difference analysis via mathematical averaging of temporally correlated data or frames, where temporal correlated data or images are data or images binned at a same point in a cardiac cycle. The Office Action acknowledges that Young does not teach or suggest these elements of the claims. Office Action, p. 12. The Office Action turns to O'Donnell. However, O'Donnell does not teach or suggest sorting and binning data according to temporal position in each of a sequence of cardiac pulses. To the extent that O'Donnell teaches sorting and binning, these functions are performed with respect to signal strength, not temporal position. For at least these additional reasons, claims 61 and 63 are patentable over the cited references.

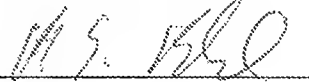
Claim 66 recites generating an animation of changes in enhancements over the total acquisition time of the difference data or images, thresholded data or images and/or the color-coded data or images. Claim 67 recites that the animation corresponds temporally with the originally-acquired data in order to allow direct visual comparison between the original data and the processed data. Claim 68 recites computing a statistical measurement of an average enhancement per enhanced pixel for each difference data or image generated over the total acquisition time to quantify numerically a presence and amount of enhancements over time.

These claims were rejected over the combination of Young and O'Donnell, however, the Office Action failed to establish a *prima facie* case of obviousness for rejection of these claims because the Office Action fails to indicate how the elements of these claims are obvious over the cited references. It is the responsibility of the Office to present a *prima facie* case of obviousness for each and every claim rejected under 35 U.S.C. §103. If the rejection of these claims is to be maintained, the Applicants respectfully request that the next Office Action specifically identify the basis for finding the elements of these claims obvious. Otherwise, the Applicants respectfully request withdrawal of the rejection of claims 66-68.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue. If the Examiner has any questions or concerns, the Applicants encourage the Examiner to contact the Applicants' representative, Bruce Black, by telephone to discuss the matter.

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Respectfully submitted,

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